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10/664,642	09/19/2003	Shunpei Yamazaki	0553-0378	5083

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EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

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07/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/664,642	Applicant(s) YAMAZAKI ET AL.	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 19-24, 29 and 34-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 19-24, 29 and 34-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>0107</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1-3, 5-6, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2001/0006827 A1 to Yamazaki et al. in view of Japanese Patent No. 06-088233 A to Kawasaki et al. and U.S. Patent No. 6,592,933 to Himeshima et al.**

4. Yamazaki et al. disclose a fabrication system substantially as claimed in Figure 1, 2 and 6, comprising: a load chamber (604); a transport chamber (601) connected with said load chamber; a plurality of film formation chambers (606, 608, 610, 312)

connected with said transport chamber; wherein each of said plurality of film formation chambers comprises: an aligner (Figure 2A and 2B, 210) for allowing portions of a mask and a substrate to be in registry with each other; a substrate holder (Figure 2B, 204); a plurality of evaporation source holders (104); and a moving mechanism (paragraph 14) for moving said evaporation source holders; wherein each of said evaporation source holders have containers (evaporation cells, 103; paragraph 13), said containers being arranged in a longitudinal direction of each of said evaporation source holders and containing an evaporation material; and a heater for heating said containers (paragraph 36); wherein each of said plurality of film formation chambers is connected with a first vacuum exhaust treatment chamber (paragraph 61) for allowing the inside of each of said film formation chambers to be in a vacuum state.

5. However, Yamazaki et al. fail teach each of the plurality of film formation chambers connected to an installation chamber.

6. Yamazaki et al. do however teach providing installation (preparation or reserve) chambers (paragraph 38 and Figure 5, 508; paragraph 49 and Figure 8, 806; paragraph 89) connected with a film formation chamber for the purpose of storing a plurality of types of evaporation materials and/or masks and switching them as appropriate.

Yamazaki et al. also teach that either the evaporation source—see paragraphs 49 and 89, or the evaporation cell—see paragraph 38 can be changed. The installation chamber further comprises: a transport (internal conveyor) for transporting said materials or masks into the film formation chamber (paragraph 49). The evaporation sources are provided for holding the evaporation cells. It would be clear to one of ordinary skill in

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the art that were the evaporation cells being transported, they would be transported to the evaporation source holders in the film formation chamber.

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an installation (preparation or reserve) chamber for each of the film formation chambers in the embodiment in illustrated in Figure 6 of Yamazaki et al. in order to store evaporation materials and masks and switch them as appropriate as taught elsewhere in Yamazaki et al.

8. Yamazaki et al. disclose the invention substantially as claimed and as described above.

9. However, Yamazaki et al. fail to teach the installation chamber comprising a heater for heating said containers previously and/or connected with a second vacuum exhaust treatment chamber for allowing an inside of said installation chamber to be in vacuum state.

10. Kawasaki et al. teach providing an installation chamber (preparation chamber, 16) connected to a vacuum depositing chamber (10). The installation chamber comprises a vacuum exhaust treatment chamber (17) and a heater (19) for the purposes of allowing an evaporation material to be exchanged without losing vacuum in the vacuum depositing chamber and allowing use of the evaporation material in a short time once it is passed into the vacuum depositing chamber (abstract and paragraphs 16 and 25 of JPO online translation).

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a vacuum exhaust treatment chamber and a heater in Yamazaki in order to allow an evaporation material to be exchanged without losing vacuum in the vacuum depositing chamber and also to allow use of an evaporation material in a short time once it is passed into the vacuum depositing chamber as taught by Kawasaki et al.

12. Yamazaki et al. and Kawasaki et al. disclose the system substantially as claimed and as described above.

13. However, Yamazaki et al. and Kawasaki et al fail to disclose a frame having a metal plate which is perpendicular to the substrate.

14. Himeshima et al. teach providing a metal plate frame perpendicular to the deposition substrate for the purpose of easy handling of a mask in a vapor deposition system (column 10, rows 1-9 and column 15, rows 28-39).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a metal plate frame perpendicular to the substrate in Yamazaki et al. and Kawasaki et al. in order provide for easy handling of a mask as taught by Himeshima et al.

16. With respect to claim 2, as disclosed in the prior art above, said frame overlaps a terminal region, a cut region, or an end portion of the substrate with a mask being sandwiched therebetween

17. With respect to claim 3, in Himeshima et al., the frame and the mask are adhesively bonded (column 15, rows 21-23).

18. With respect to claim 5, said containers are arranged at equal intervals in each of said evaporation source holders of Yamazaki et al. See Figures 1A and 1B.

19. With respect to claim 6, the evaporation source holders are rectangular. See Figures 1A and 1B.

20. With respect to claims 34 and 36, frame of Himeshima et al. is provided between said source holder and said mask and as disclosed above would also be positioned such that said source holder passes under said frame and said mask.

21. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Kawasaki et al. and Himeshima et al. as applied to claims 1-3, 5-6, 34 and 36 above, and further in view of U.S. Patent No. 4,023,523 to Ing.

22. Yamazaki et al., Kawasaki et al. and Himeshima et al. disclose the invention substantially as claimed and as described above, including a moving mechanism moving said evaporation source holder in an x-axis direction at a given pitch. See Figure 2B.

23. However, Yamazaki et al., Kawasaki et al. and Himeshima et al. fail to also teach the moving mechanism also moving the evaporation source holders in a y-axis direction at another given pitch.

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24. Ing teaches providing a moving mechanism for moving an evaporation source in a y-axis direction (translationally) for the purpose of assuring adequate coverage (abstract; column 3, rows 42-53; and column 4, row 63 through column 5, row 14).

25. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have also provided the moving mechanism for providing movement in a y-axis direction in addition to a x-axis direction in Yamazaki et al., Kawasaki et al. and Himeshima et al. in order to assure adequate coverage as taught by Ing.

26. Claims 19-21, 23-24, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2001/0006827 A1 to Yamazaki et al. in view of Japanese Patent No. 06-088233 A to Kawasaki et al., U.S. Patent No. 6,592,933 to Himeshima et al. and U.S. Patent No. 6,294,892 to Utsugi et al.

27. Yamazaki et al. disclose a fabrication system substantially as claimed in Figure 1, 2 and 6, comprising: a load chamber (604); a transport chamber (601) connected with said load chamber; a plurality of film formation chambers (606, 608, 610, 312) connected with said transport chamber; wherein each of said plurality of film formation chambers comprises: an aligner (Figure 2A and 2B, 210) for allowing portions of a mask and a substrate to be in registry with each other; a frame (Figure 2B, 207); a substrate holder (Figure 2B, 204); a plurality of evaporation source holders (104); and a moving mechanism/stage (paragraph 14) for moving said evaporation source holders; wherein each of said evaporation source holders have containers (evaporation cells,

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103; paragraph 13), said containers being arranged in a longitudinal direction of each of said evaporation source holders and containing an evaporation material; and a heater for heating said containers (paragraph 36); wherein each of said plurality of film formation chambers is connected with a first vacuum exhaust treatment chamber (paragraph 61) for allowing the inside of each of said film formation chambers to be in a vacuum state.

28. However, Yamazaki et al. fail to explicitly teach each of the plurality of film formation chambers connected to an installation chamber.

29. Yamazaki et al. do however teach providing installation (preparation or reserve) chambers (paragraph 38 and Figure 5, 508; paragraph 49 and Figure 8, 806; paragraph 89) connected with a film formation chamber for the purpose of storing a plurality of types of evaporation materials and/or masks and switching them as appropriate.

Yamazaki et al. also teach that either the evaporation source—see paragraphs 49 and 89, or the evaporation cell—see paragraph 38 can be changed. The installation chamber further comprises: a transport (internal conveyor) for transporting said materials or masks into the film formation chamber (paragraph 49). The evaporation sources are provided for holding the evaporation cells. It would be clear to one of ordinary skill in the art that were the evaporation cells being transported, they would be transported to the evaporation source holders in the film formation chamber.

30. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an installation (preparation or reserve) chamber for each of the film formation chambers in the embodiment in illustrated in

Figure 6 of Yamazaki et al. in order to store evaporation materials and masks and switch them as appropriate as taught elsewhere in Yamazaki et al.

31. Yamazaki et al. disclose the invention substantially as claimed and as described above.

32. However, Yamazaki et al. fail to teach the installation chamber comprising a heater for heating said containers previously and/or connected with a second vacuum exhaust treatment chamber for allowing an inside of said installation chamber to be in vacuum state.

33. Kawasaki et al. teach providing an installation chamber (preparation chamber, 16) connected to a vacuum depositing chamber (10). The installation chamber comprises a vacuum exhaust treatment chamber (17) and a heater (19) for the purposes of allowing an evaporation material to be exchanged without losing vacuum in the vacuum depositing chamber and allowing use of the evaporation material in a short time once it is passed into the vacuum depositing chamber (abstract and paragraphs 16 and 25 of JPO online translation).

34. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a vacuum exhaust treatment chamber and a heater in Yamazaki in order to allow an evaporation material to be exchanged without losing vacuum in the vacuum depositing chamber and also to allow use of an evaporation material in a short time once it is passed into the vacuum depositing chamber as taught by Kawasaki et al.

35. Yamazaki et al. and Kawasaki et al. disclose the system substantially as claimed and as described above.

36. However, Yamazaki et al. and Kawasaki et al fail to disclose a frame having a metal plate which is perpendicular to the substrate.

37. Himeshima et al. teach providing a metal plate frame perpendicular to the deposition substrate for the purpose of easy handling of a mask in a vapor deposition system (column 10, rows 1-9 and column 15, rows 28-39).

38. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a metal plate frame perpendicular to the substrate in Yamazaki et al. and Kawasaki et al. in order provide for easy handling of a mask as taught by Himeshima et al.

39. Yamazaki et al., Kawasaki et al. and Himeshima et al. disclose the invention substantially as claimed and as described above.

40. However, Yamazaki et al., Kawasaki et al. and Himeshima et al. fail to teach said aligner at least comprising a CCD camera and a stopper for allowing positions of a mask and a substrate to come into registry with one another.

41. Utsugi et al. teach the use of an aligner for allowing positions of a mask and a substrate to be in registry with each other for the purpose of developing a manufacturing method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several

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tens μm (column 2, rows 22-27 and column 5, rows 30-34). The aligner means comprises a stopper/magnet (for stopping misalignment)(column 3, rows 36-41 and column 6, rows 3-6), and a CCD camera for monitoring alignment (column 5, row 34).

42. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an aligner in Yamazaki et al., Kawasaki et al. and Himeshima et al. in order to allow for positioning of a mask and a substrate to be in registry with each other and in order to develop a manufacturing method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several tens μm as taught by Utsugi et al.

43. With respect to claim 2, in Yamazaki et al., said "substrate holder" overlaps a terminal region, a cut region, or an end portion of the substrate with a mask being sandwiched therebetween. See Figures 2A and 2b. The mask is sandwiched between the inner periphery of the substrate holder.

44. With respect to claim 3, in Yamazaki et al., "substrate holder" and mask are bonded together using magnetic suction means (paragraph 34).

45. With respect to claim 5, said containers are arranged at equal intervals in each of said evaporation source holders of Yamazaki et al. See Figures 1A and 1B.

46. With respect to claim 6, the evaporation source holders are rectangular. See Figures 1A and 1B.

47. Yamazaki et al. and Kawasaki et al. disclose the invention substantially as claimed and as described above.

48.

49. However, Yamazaki et al. and Kawasaki et al. fail to teach said aligner at least comprising a CCD camera and a stopper for allowing positions of a mask and a substrate to come into registry with one another.

50. Utsugi et al. teach the use of an aligner for allowing positions of a mask and a substrate to be in registry with each other for the purpose of developing a manufacturing method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several tens μm (column 2, rows 22-27 and column 5, rows 30-34). The aligner means comprises a stopper/magnet (for stopping misalignment)(column 3, rows 36-41 and column 6, rows 3-6), and a CCD camera for monitoring alignment (column 5, row 34).

51. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an aligner in Yamazaki et al. and Kawasaki et al. in order to allow for positioning of a mask and a substrate to be in registry with each other and in order to develop a manufacturing method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several tens μm as taught by Utsugi et al.

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52. With respect to claim 20, as disclosed in the prior art above, said frame overlaps a terminal region, a cut region, or an end portion of the substrate with a mask being sandwiched therebetween. See Figure 6, for example.

53. With respect to claim 21, in Himeshima et al., the frame and the mask are adhesively bonded (column 15, rows 21-23).

54. With respect to claim 23, said containers are arranged at equal intervals in each of said evaporation source holders of Yamazaki et al. See Figures 1A and 1B.

55. With respect to claim 24, the evaporation source holders are rectangular. See Figures 1A and 1B.

56. With respect to claims 35 and 37, frame of Himeshima et al. is provided between said source holder and said mask and as disclosed above would also be positioned such that said source holder passes under said frame and said mask.

57. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and Kawasaki et al., Himeshima et al. and Utsugi et al. as applied to claims 19-21, 23-24, 35 and 37 above and further in view of U.S. Patent No. 4,023,523 to Ing.

58. Yamazaki et al. and Kawasaki et al., Himeshima et al. and Utsugi et al. disclose the invention substantially as claimed and as described above, including a moving mechanism moving said evaporation source holder in an x-axis direction at a given pitch. See Figure 2B.

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59. However, Yamazaki et al. and Kawasaki et al., Himeshima et al. and Utsugi et al. fail to also teach the moving mechanism also moving the evaporation source holders in a y-axis direction at another given pitch.

60. Ing teaches providing a moving mechanism for moving an evaporation source in a y-axis direction (translationally) for the purpose of assuring adequate coverage (abstract; column 3, rows 42-53; and column 4, row 63 through column 5, row 14).

61. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have also provided the moving mechanism for providing movement in a y-axis direction in addition to a x-axis direction in Yamazaki et al. and Kawasaki et al., Himeshima et al. and Utsugi et al. in order to assure adequate coverage as taught by Ing.

62. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., Kawasaki et al. and Himeshima et al. as applied to claims 1-3, 5-6, 34 and 36 above, and further in view of U.S. Patent No. 6,294,892 to Utsugi et al.

63. Yamazaki et al., Kawasaki et al. and Himeshima et al. disclose the invention substantially as claimed and as described above.

64. However, Yamazaki et al., Kawasaki et al. and Himeshima et al. fail to teach said aligner at least comprising a CCD camera and a stopper for allowing positions of a mask and a substrate to come into registry with one another.

65. Utsugi et al. teach the use of an aligner for allowing positions of a mask and a substrate to be in registry with each other for the purpose of developing a manufacturing

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method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several tens μm (column 2, rows 22-27 and column 5, rows 30-34). The aligner means comprises a stopper/magnet (for stopping misalignment)(column 3, rows 36-41 and column 6, rows 3-6), and a CCD camera for monitoring alignment (column 5, row 34).

66. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an aligner in Yamazaki et al., Kawasaki et al. and Himeshima et al. in order to allow for positioning of a mask and a substrate to be in registry with each other and in order to develop a manufacturing method having sufficient accuracy in order to finely separate a luminescent layer formed by excessively thin organic vaporized film into a sub-pixel of high accuracy of several tens μm as taught by Utsugi et al.

Response to Arguments

67. Applicant's arguments with respect to the amended (new features) and newly added claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

68. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,827,622 also discloses vertical mask supporting members.

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69. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

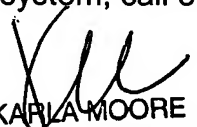
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KARLA MOORE
PRIMARY EXAMINER
Art Unit 1763
23 July 2007